



MASSACHUSETTS OFFSHORE WIND ENERGY AREA LEASE OPPORTUNITIES

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To: Clients and Colleagues

From: John Dalton, President & Carson Robers, Consultant, Power Advisory LLC

On April 28, 2017 the Massachusetts Electric Distribution Companies (EDCs) jointly [submitted](#) a request for approval of the 83C Request for Proposals (RFP) for long-term contracts for 400 to 800 MW of offshore wind energy generation to the Massachusetts Department of Public Utilities (DPU).¹² This draft RFP contains a schedule that calls for the final RFP to be released on June 30, 2017 after it is reviewed by the DPU and the DPU issues a decision on the draft RFP. This will be the first procurement pursuant to the mandate of Chapter 188 of the Acts of 2016, *An Act to Promote Energy Diversity*, to solicit 1,600 MW of offshore wind capacity by June 30, 2027.

In response to the forthcoming RFP, it is expected that the three existing Bureau of Ocean Energy Management (BOEM) Massachusetts lease holders, Deepwater Wind, Bay State Wind LLC (DONG Energy and Eversource), and Vineyard Wind (Copenhagen Infrastructure Partners and Avangrid Renewables) will submit bids, with one awarded a long-term contract.³ Given the additional capacity to be procured under the Massachusetts legislation of 800 to 1,200 MW and nascence of the U.S. offshore wind market, there is a significant opportunity for offshore wind development in the Rhode Island -Massachusetts and Massachusetts Wind Energy Areas (WEAs).

This RFP is timely. Three contracts were recently awarded for offshore wind projects in Germany that required no subsidy beyond market prices. One project obtained a fixed price of €60/MWh (\$65/MWh). The pricing offered for these projects is considerably below what Massachusetts is likely to pay, but demonstrates the dramatic cost reductions that have been realized in Europe with a well-developed supply chain.⁴ Clearly, one of the primary objectives of the Massachusetts RFP is to promote the development of such a supply chain along with the realization of the attendant cost reductions and to seek to induce the development of this supply chain in Massachusetts.

¹ Find Power Advisory's 2016 summary of *An Act to Promote Energy Diversity* [here](#).

² The RFP also allows bidders to submit alternative proposals with a capacity of no less than 200 MW, but each bidder is required to submit a proposal of 400 MW.

³ Deepwater Wind developed the first offshore wind farm in the United States, the 30 MW Block Island Wind Farm, which was operational as of December 12, 2016. Vineyard Wind is formerly known as OffshoreMW LLC.

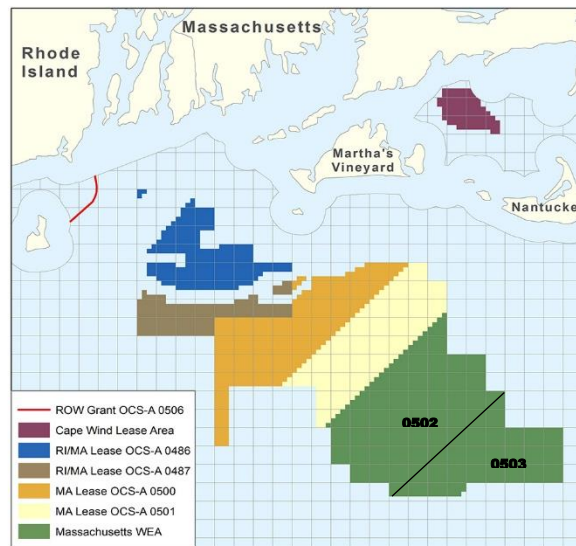
⁴ This project pricing also benefits from the fact that the transmission interconnection is provided to the developer and one of the bidders had a project nearby which allows for lower project support and logistics costs.

UPCOMING MA AUCTION (OCS-A 0502 / 0503)

Although a specific date has not been determined, BOEM will hold a competitive auction for the OCS-A 0502 and 0503 lease areas offshore of Massachusetts. The auction is expected to occur by late 2017 / early 2018.

The auction of the two lease areas, an aggregate of 140,554 acres with a maximum development potential of 4,717 MW, is in response to unsolicited lease applications from Statoil Wind US LLC and PNE Wind USA Inc. from December 2016. These Norwegian and German affiliated developers have announced plans for multiple +400MW projects, but since both expressed interest in the same lease area BOEM must hold a lease auction in which all qualified parties may participate.

Figure 1: MA and RI Offshore Wind Project Areas



Source: BOEM

Lease areas OCS-A 0502 and 0503 make up the remaining Massachusetts WEA, depicted in green above. These two areas are farther from the mainland and have greater water depths at over 60 meters in parts.

NEW WIND ENERGY/ LEASE AREAS

Additionally, the BOEM is seeking feedback on identifying new lease areas. Potential WEAs including a section from Massachusetts' Nantucket Sound to New York have been presented by the agency. Specific Requests for Information (RFIs) will be used to solicit input on the call areas.

During the original designation of the MA WEA the BOEM task force reduced the offshore wind area by 60% after engaging stakeholders in over 100 meetings and forming fisheries and habitat working groups. The blocks removed from consideration would have extended the WEA to the east and North towards Nantucket. As new WEAs are identified it is unlikely that these sections will be reconsidered.

PAST BOEM AUCTIONS

To date BOEM has administered 7 competitive auctions for 11 offshore wind leases off the Atlantic coast of the United States. The first two auctions were held in 2013 (RI-MA, VA) and the most recent on March 16, 2017 for the North Carolina Kitty Hawk WEA. The auctions and associated leases are summarized in Table 1 below.

Table 1: Competitively Awarded Commercial Offshore Leases and Wind Energy Areas⁵

Auction Date	Lease Area	State	Bidders	Auction Rounds	Unsuccessful Bidders	Lease Issue Date	Lessee	Acres	Maximum Potential (MW)*	Cash Bonus/Acquisition Fee	Bid Value (\$/MW)	Bid Value (\$/acre)
7/31/2013	OCS-A 0486 (North)	RI-MA	2	11	US Wind Inc.	7/31/2013	Deepwater Wind	97,498	1,184	\$3,809,461	\$1,905	\$23
	OCS-A 0487 (South)	RI-MA	2		Sea Breeze Energy LLC	7/31/2013	Deepwater Wind	67,252	816			
9/4/2013	OCS-A 0483	VA	2	6	Apex Virginia Offshore Wind, LLC	9/4/2013	Virginia Electric and Power Company (dba Dominion Virginia Power)	112,799	1,369	\$1,600,000	\$1,168	\$14
8/19/2014	OCS-A 0489 (North)	MD	3	17	SCS Maryland Energy LLC, Green Sail Energy LLC	8/19/2014	US Wind Inc.	32,737	397	\$3,841,538	\$9,666	\$117
	OCS-A 0490 (South)	MD				8/19/2014	US Wind Inc.	46,970	570			
1/29/2015	OCS-A 0500	MA	2	2	OffshoreMW LLC	1/29/2015	Bay State Wind LLC (DONG Energy) assigned from RES	187,523	2,277	\$281,285	\$124	\$2
	OCS-A 0501	MA	1		-	1/29/2015	OffshoreMW LLC (now Vineyard Wind)	166,886	2,026			
11/9/2015	OCS-A 0498	NJ	3	7	Fishermen's Energy LLC, U.S. Wind Inc.	2/4/2016	DONG Energy, assigned from RES	160,480	1,948	\$880,715	\$452	\$5
	OCS-A 0499	NJ	2		Fishermen's Energy LLC	2/4/2016	US Wind Inc.	183,353	2,226			
12/15 to 12/16/2016	OCS-A 0512	NY	6	33	Avangrid Renewables, LLC, DONG Energy Wind Power (U.S.) Inc., Innogy US Renewable Projects LLC, NYSERDA, wpd offshore Alpha LLC	3/10/2017	Statoil Wind US LLC	79,350	963	\$42,469,725	\$44,085	\$535
3/16/2017	OCS-A-0508 (Kitty Hawk WEA)	NC	4	17	Statoil Wind US LLC, Wind Future LLC, wpd offshore Alpha LLC	TBA	Avangrid Renewables LLC	122,405	1,486	\$9,066,650	\$6,101	\$74

Source: Power Advisory

Given Massachusetts' commitment to offshore wind it is likely that the upcoming lease sales will be competitive and result in high cash bonus/acquisition fees. However, these lease areas will likely have higher transmission and foundation costs given greater distance from shore and associated network transmission facilities and deeper waters.

Maryland (OCS-A 0489/0490) and New York (OCS-A 0512) demonstrate how favorable state policies that increase the likelihood of a securing a long-term power purchase agreement (PPAs), which is essential for project financing, can enhance the value of a lease. Through the Offshore Wind Energy Act of 2013 Maryland

⁵ * Assumes an average capacity density of 3 MW/km² based on spacing of 9 to 10 rotor diameters (NREL "2014-2015 Offshore Wind Technologies Market Report" September 2015)



established an offshore renewable energy credit (OREC) program and Renewable Portfolio Standard carveout for offshore wind (OSW) representing up to 2.5% of qualifying electricity demand starting in 2017. Yesterday, the Maryland Public Service Commission issued an order approving PPAs for two projects: (1) U.S. Wind Inc., plans to build a \$1.4 billion, 248 MW project; and (2) Skipjack Offshore Wind Energy LLC, an affiliate of Deepwater Wind, who owns and operates the Block Island Wind Farm, plans to build a 120 MW project.

Similarly, New York's CES identified offshore wind and the state later called for 2.4 GW of OSW by 2030 (after the BOEM auction for New York WEA was completed and the lease awarded). The resulting bid values per acre were \$117.35 and \$103.46 for the Maryland WEA and \$535.22 for the New York WEA. The New York auction went for 33 rounds was 6 times the BOEM auction average of \$88.40/acre. Another factor likely supporting pricing in the New York WEA auction was that it was for one lease area, which would put the winner in a strong competitive position to bid on future NYSERDA OSW PPAs. Interestingly, NYSERDA has subsequently announced that it will be proposing two additional WEAs to BOEM in the fall of 2017.

State support of OSW does not explain all BOEM auction results. In 2010, 5-years before the auction of OCS-A 0498/0499, New Jersey passed the Offshore Wind Development Act (S.B. 2036) with a requirement for the support of 1,100 MW of OSW through the RPS. Yet, the BOEM's lease auctions were not particularly competitive, with only 2 and 3 bidders and a bid value of \$5.49/acre. The winning North Carolina bid in March was \$74.07/acre despite a lack of policy support and an obvious near term development opportunity. However, with relatively unattractive onshore wind regimes in North Carolina except in the Western more mountainous areas, the relative economics OSW in North Carolina are more favorable than in other jurisdictions.

Besides state policy support there are a number of other factors that may explain the value of OSW leases, including water depth, OSW resources, onshore resources, need for incremental renewables, and market opportunities in other states. These factors are identified in Table 2.

Table 2: Characteristics of Offshore Wind Lease Areas

Lease Areas	Lease Issue Date	Acres	Water Depth (m)	Wind Speed (m/s)	State RPS	OSW Carveout or Procurement	ISO / RTO	Other States
OCS-A 0482	11/16/2012	96,430	10-30	8.0-8.5	25% by 2025	-	PJM	MD
OCS-A 0486 (North); OCS-A 0487 (South)	7/31/2013	97,498 ; 67,252	Average 35.7; 45.9	8.5-9.5	RI -38.5% by 2035 ; MA - 15% by 2020 +1% annual increase, anticipated CES	1,600 MW OSW by 2027 (83C)	ISO-NE	NY
OCS-A 0483	9/4/2013	112,799	Average 30.5	7.5-9.0	15% of base year (2007) sales by 2025	-	PJM*	-
OCS-A 0489 (North); OCS-A 0490 (South)	8/19/2014	32,737; 46,970	15-30; 15-40	8.0-8.5	25% by 2020	Up to 2.5% RPS beginning in 2017; OREC	PJM	-
OCS-A 0500; OCS-A 0501	1/29/2015	187,523 ; 166,886	Average 47.6 ; 51.8	8.5 - 10.0	15% by 2020 +1% annual increase, MA; anticipated CES	1,600 MW by 2027 (83C)	ISO-NE	NY
OCS-A 0498 (South); OCS-A 0499 (North)	2/4/2016	160,480 ; 183,353	40-50; 15-35	8.0-9.0	20.38% by May 2021 & 4.1% solar by ay 2028	1,100 MW; OREC	PJM	NY
OCS-A 0512	3/10/2017	79,350	20- 40	8.5-9.5	50% by 2030 CES	2,400 MW by 2030	NYISO	-
Kitty Hawk WEA (OCS-A-0508)	TBA	122,405	30-45	7.5-8.5	IOU 12.5% by 2021; Muni/EMCs 10% by 2018	None	N/A	-

Source: Power Advisory

Power Advisory would welcome the opportunity to assist clients in assessing offshore wind opportunities in RI-MA and other Atlantic markets, including the implications of such development on transmission and on-shore resources.